

# Characteristics of positive cloud-to-ground discharges over the U.S.High Plains in summer and occurrence conditions of sprites

# Katsura Yamamoto[1]; Hiroshi Fukunishi[2]; Mitsuteru Sato[3]; Yukihiro Takahashi[4]

[1] Department of Geophysics, Tohoku Univ.

; [2] Department of Geophysics, Tohoku Univ.; [3] Dept. of Geophysics, Tohoku Univ; [4] Dept. Geophysics, Tohoku University

In order to investigate the occurrence conditions of sprites, we studied the characteristics of positive cloud-to-ground(+CG) discharges in both the cases with sprites and without sprites. The sprite events were observed over the U.S.High Plains in summer during the STEPS 2000 campaign. we estimated the charge moment and decay time constant of these CG discharges using ELF magnetic field waveform data obtained at Syowa station(69.0S, 39.6E) in Antarctica. Further, we compared the values of charge moment and decay time constant with the values of peak current intensity measured by National Lightning Detection Network(NLDN). We will discuss differences in the characteristics of these CG discharges and their relationship to the sprite generation conditions in detail.